



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,591	02/06/2002	Misuk Yamazaki	500.41144X00	5470
20457	7590	11/06/2003		
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			EXAMINER LEE, EUGENE	
			ART UNIT 2815	PAPER NUMBER

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,591

Applicant(s)

YAMAZAKI ET AL.

Examiner

Eugene Lee

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species IV (claims 1, 2, 3, 5, 9, 10 and 11 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the election of species requirement could be restructured into two general groups instead of eight separate species in order to avoid unnecessary duplication of effort by both the USPTO and the applicants in terms of prosecuting eight separate species applications and that the search and examination of the species can be made together without serious burden to the Examiner. This is not found persuasive because the application still discloses eight separate species that are clearly disclosed in the application. The presence of eight separate species requires searches in separate classes and subclasses.

Therefore, the requirement is still deemed proper and is therefore made FINAL.

2. Claims 4, and 6 thru 8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 5.

Drawings

3. FIG. 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the lead must be shown or the

Art Unit: 2815

feature(s) canceled from the claim(s). The drawings show a lead electrode, however, there is no lead shown. No new matter should be entered.

Also, in claim 10, said electrically conductive plate is formed in such a way that a width of the side end of said semiconductor chip is smaller than that of the side end of said electrically conductive plate must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what the applicant is referring to in the limitation "a 20 % to 40 % Ni -50% to 60% with Fe remainder Co." It appears the applicant is specifying a range, however, the range

Art Unit: 2815

includes two different elements. It is not known whether the range is for Ni or for Fe remainder Co. Proper clarification and correction are required.

In claim 10, it is unclear how "said electrically conductive plate is formed in such a way that a width of the side end of said semiconductor chip is smaller than that of the side end of said electrically conductive plate." According to FIG. 8, width W is defined as the horizontal distance. According to FIG. 9 and page 31, lines 5-8, it is not understood how the width Wc of the side end of said semiconductor chip can be smaller than that of the side end Wb of said electrically conductive plate. Claim 10 also contradicts itself by stating "each width of ... said electrically conductive plate is smaller than that of said semiconductor chip" and then stating "a width of the side end of said semiconductor chip is smaller than that of the side end of said electrically conductive plate."

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Boudrant et al. 5,206,793. Boudrant discloses (see, for example, FIG. 1) a semiconductor device comprising an electrode (lead electrode) 4, threaded end (lead) 13, electrode case (case electrode) 14, diode chip (semiconductor chip) 2, connection members, and flat head (electrically conductive plate)

11. In column 2, lines 57-63, Boudrant states that the electrode 4 are kept assembled on the face

Art Unit: 2815

of the chip by simple intimate contact of electrical conduction. The diode chip is connected to the flat head by unlabeled connection members.

10. Claims 1 thru 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Lob 3,315,136. Lob discloses (see, for example, figure) comprising a connecting terminal (lead electrode) 12, housing portion (case electrode) 1, semiconductor member (semiconductor chip) 8, solder layers (connection members) 9, 10, and copper structure (electrically conductive plate) 11. In column 1, lines 10-11, Lob states that the semiconductor device is for power rectifiers.

Regarding claims 2 and 3, in column 3, lines 39-40, Lob discloses the copper structure as also being silver plated. A silver plated structure has a coefficient of linear expansion less than the housing portion since silver expands less when heated than regular copper.

11. Insofar as definite, claims 1, 9, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Narita et al. 4,305,088. Narita discloses (see, for example, FIG. 3) a semiconductor rectifier (semiconductor device) comprising a header lead (lead electrode) 2, lead terminals (lead), electrode plate (case electrode) 1, silicon chip 7, solder (connection members) 8, and header section (electrically conductive plate) 2a.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2815

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boudrant et al. 5,206,793 as applied to claims 1 and 9 above, and further in view of Yokoyama 07-221235 JPO. Boudrant does not disclose said electrically conductive plate having a layer structure of copper-iron alloy-copper, and the iron alloy containing a 30% to 50% with Ni remainder Fe or a 20 % to 40 % Ni - 50% to 60% with Fe remainder Co. However, Yokoyama discloses (see abstract) a metal lamination member comprising two copper layers and a 54% Fe and residual Co. The metal lamination member prevents deterioration of electrical characteristics for a long term. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the metal lamination member in Boudrant's invention in order to prevent deterioration of electrical characteristics for a long term.

INFORMATION ON HOW TO CONTACT THE USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 703-305-5695. The examiner can normally be reached on M-F 8-5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 703-308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Application/Control Number: 10/066,591
Art Unit: 2815

Page 7

Eugene Lee
November 2, 2003


GEORGE ECKERT
PRIMARY EXAMINER